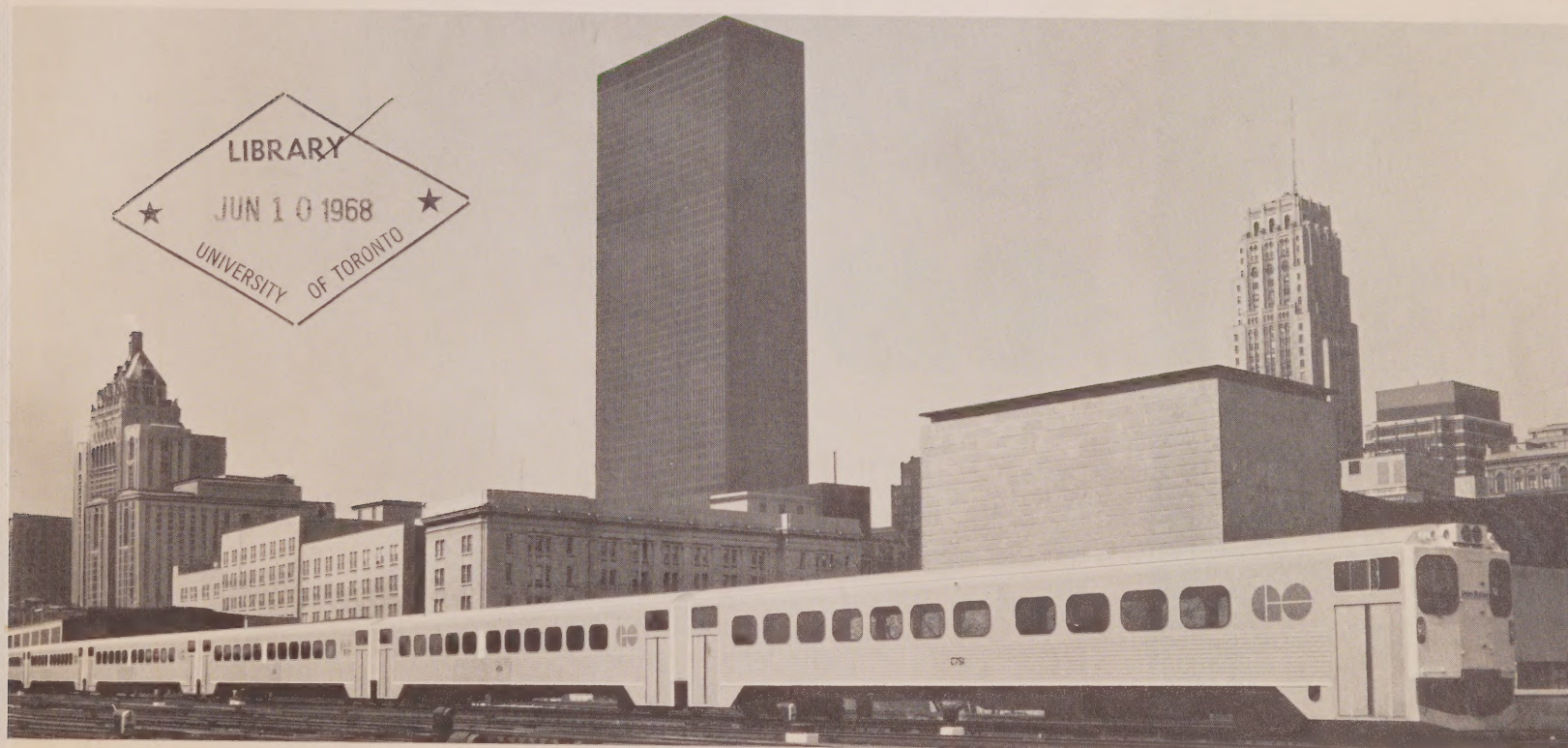
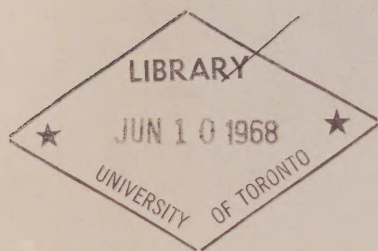


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TRANSIT



GOVERNMENT OF ONTARIO TRANSIT
A NEW APPROACH TO URBAN TRANSPORTATION



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foreword

On May 23, 1967, a new rail commuter service — Government of Ontario Transit — was introduced in Canada's heavily-populated Metropolitan Toronto area. Some unusual aspects make it more than just another railway operation.

Aside from offering a modern approach to attract car commuters off crowded highways, it is a practical experiment in the possible utilization of existing railway lines for commuter operations.

Sponsored by the Government of Ontario and operated on its behalf by Canadian National Railways, it is a practical experiment in the feasibility of a dual-agency financial and operational approach in this field.

"This service is looked upon as something of a pioneering project, insofar as it is the first time that any government in Canada has undertaken this kind of operation to provide frequent and fast suburban mass transportation," said Premier John Robarts of Ontario in announcing the project in 1965.

"The problem that we face is that the main highway routes in this particular metropolitan area are becoming strained with

over-capacity traffic during only about four hours a day, and at other times they have surplus capacity."

"What we are looking for is a better use of our transportation dollar through a balanced use of all modes of transportation in this rapidly-developing area."

In launching the project, it was stipulated that the first two to three years of its operation would be analyzed and evaluated to assist government in shaping its transportation policies, particularly as they affect large urban areas.

This report is a semi-technical description of the project prepared to assist in understanding the background to subsequent evaluation reports which are to be compiled as soon as the accumulation of analysis data will permit.

GOVERNMENT OF ONTARIO TRANSIT
Administered by the Department of Highways, Ontario

Hon. George E. Gomme
Minister

A. T. C. McNab
Deputy Minister



the setting

TORONTO is the home of two million people and focal point for one of the country's most extensive industrial and commercial concentrations. It is a metropolis well endowed with universities and cultural facilities, strong as a financial centre and capital of the Province of Ontario.

In the early pioneering days, Lake Ontario was Toronto's main highway of commerce. Consequently, the first settlements were water-oriented, and strung themselves east and west along the lake shore. Eventually some neighbouring settlements became thriving industrial cities such as Oshawa and Hamilton.

In the mid-1850's the railways came, opening up the hinterland, and so developed the basic railway network which exists in the Metropolitan Toronto region today — a series of lines radiating out from a central 'hub' (Union Station) like the spokes of a half-wheel.

Downtown Toronto—1967. Bounded by new skyscrapers, an imaginative new city hall, elevated expressways and rail lines leading into the commercial hub of the city.



Toronto's old Union Station, as it appeared about the turn of the century. The old building stood west of the present station site. (York Street crosses the tracks by means of the bridge in the foreground.)



formation of a transportation study

By the early 1960's the mass transportation situation in southern Ontario's "Golden Horseshoe" region — particularly in the Metropolitan Toronto area — was becoming a complex problem. There was a need for a comprehensive review of transportation planning responsibilities and programs in the large areas represented by the widening region. Recognizing this, the Ontario government, late in 1962, established the Metropolitan Toronto and Region Transportation Study (MTARTS) — one of the first large-scale approaches to urban transportation planning to be undertaken in Canada — to study and report on an overall transportation policy for Metropolitan Toronto and surrounding municipalities.

Encompassing many municipalities, the region investigated by MTARTS contains some 3,200 square miles, and extends to the neighbouring cities of Hamilton, 40 miles west of Toronto,

Oshawa, 30 miles east, and Barrie, 60 miles to the north. In 1964, the region contained some 85 rural and urban municipalities with a combined population of 2.8 million persons. Spectacular rates of growth promise a regional population of 6½ million by the year 2000.



In 1964, the MTARTS region contained some 2.8 million persons which is expected to grow to 6.5 million by the year 2000.

The MTARTS region is located in South-Central Ontario and shown in the darker colour.



TORONTO REGION RAILWAYS

- CN
- CP
- FREIGHT CLASSIFICATION YARDS
- CN FREIGHT BYPASS
- CP ONTARIO MAINLINE
- GO TRANSIT
- CP RUNNING RIGHTS

search for solutions

Early in its program, and in parallel with its interest in other modes of transport, MTARTS considered the possible use of existing regional rail facilities to supplement highways, particularly for heavy commuter movement to and from central Toronto. At the time, there was little knowledge of the passenger-carrying capabilities of these rail lines. Therefore an engineering study was conducted to determine the potential of various routes to handle significant commuter traffic volumes.

This investigation covered 15 rail routes in the region, totalling about 280 miles of track. Most of these lines were shown to be capable of handling a limited commuter service with little or no modification. On 80 route miles — most of which lay be-

tween Oakville and Pickering — a more frequent service could be accommodated, with some new construction. Rapid transit service could be provided on about 60 route miles, but would require much additional trackage.

The survey concluded that, with modification, the existing rail network would be capable of delivering over 45,000 passengers to the downtown area in rush periods. Clearly, here was a potentially valuable addition to the regional transportation system. There remained to be established the degree of demand for, and hence the economic justification of, rail commuter service.



Study of 280 miles of rail routes was conducted to determine the feasibility of various levels of commuter services.

a commuter concept crystallizes

With rail service available, would the auto-oriented commuter make use of it? This was the question faced by MTARTS in 1964, once it had determined the physical feasibility of a commuter rail network. The few existing suburban trains, operated by Canadian National Railways, afforded little useful evidence since their number was so limited that appeal to the auto commuter was severely restricted. The same limitations applied to some intercity trains which were used to a minor extent by Toronto commuters.

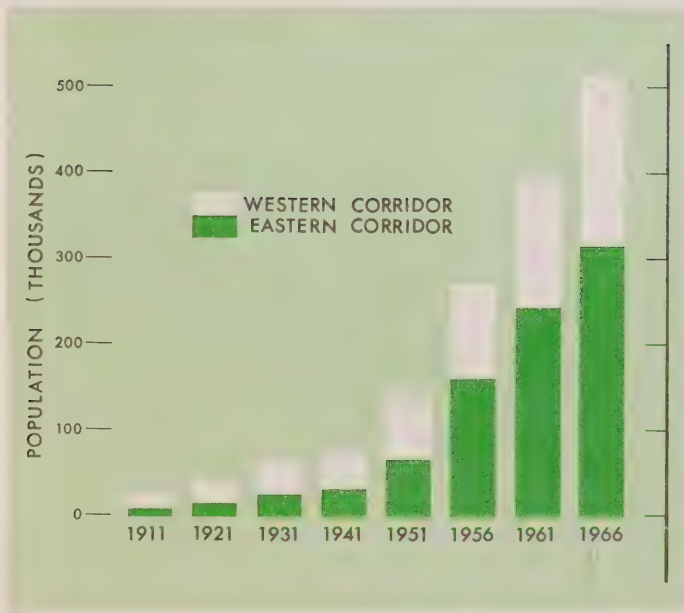
A study of the commuter rail market over the entire potential regional system would have been unrealistic in the early stages. However, a 42 mile portion of Canadian National Railways Lakeshore rail lines, between Oakville and Pickering seemed to offer the greatest promise for a successful suburban service because of the existing and potential population characteristics of the 'corridor' and the physical features of the rail line itself. Attention was focussed on this route.

Railway operating restrictions dictated that an intermediate level of commuter service — trains running at 20 minute head-

ways during peak periods, hourly at other times — would be the maximum that could be accommodated. On this basis, MTARTS set out to determine patronage, fare and service relationships; engineering requirements; and costs for an experimental service which could be operated for a period to serve as a test bed for the evaluation of rail commuter service in a balanced transportation system.

Most of the population that conceivably would use the service was assumed to lie within a corridor averaging four miles in width, measured north from Lake Ontario, and extending from Mimico to Bronte in the west and from Danforth to Ajax in the east. The population within this corridor in 1967 was approximately half a million persons. Without considering the impact of GO Transit, this is expected to double in the next 15 years.

An intensive survey of representative households in the areas adjacent to the proposed stations established that about 40,000 people travelled daily to work in central Toronto in 1964. This figure in itself is not significant since it results from prejudging the effective width of corridor commanded by rail service.



The census population of the lakeshore communities east and west of Toronto has risen sharply in recent years.

Commuting respondents indicated in the survey that one in seven, or 5,500 in all would probably use the service each business day for a total of 11,000 return trips. Persons traveling for school, shopping, entertainment and personal reasons could be expected to swell the total of all-purpose trips per day to 15,000.

The proposed service would be confined to CN trackage with the exception of the Union Station area, which is managed by Canadian National and Canadian Pacific Railways through their jointly-owned Toronto Terminals Railway Company. Canadian National indicated that it was prepared to operate the trains for the provincial government under contract. In effect then, the railway would be responsible for day-to-day operating decisions while the government would specify the type of service, fare levels, schedules and other policies, supply the capital to finance the project, pay operating costs, and receive the revenue.

Income from fares was expected to reach \$1.5 million annually, while the yearly operating costs of the service were estimated at \$3.5 million. Thus, the government would face an annual operating deficit of perhaps \$2 million.

This then was the scheme which was presented to the Ontario government early in 1965. It offered the government the proposition of accepting deficit financing in the field of public transportation. On the other hand, the challenge was clear—the commuter rail experiment might point the way toward a more efficient use of the transportation dollar despite its red ink accounting.

If providing a service could retard the expected traffic increases on the region's expressways, costly enlargement of these arteries might be deferred. The present cost of building a six-lane expressway is between \$4 and \$6 million per mile, jumping to an impressive \$16 million per mile in the case of elevated structures such as Toronto's Gardiner Expressway.

And so, continuing the bold transportation approach which had resulted in the formation of the Transportation Study itself just two years earlier, the Ontario government gave the green light to the commuter proposal with a public announcement by Premier John Robarts in May 1965.



Elevated highways — such as the six-lane Gardiner Expressway, which parallels GO trains into downtown Toronto—cost over \$16 million per mile to build.



▶ The Hon. John P. Robarts with former CN President Donald Gordon gave the green light to proceed with the GO Transit Project in May 1965.

project development

The concept was accepted. The days of generalization were over; implementation lay ahead.

One of the first steps taken by the Government was to place responsibility for implementation and administration of the new commuter service with the Ontario Department of Highways. A Commuter Services department was established by Canadian National Railways to plan and coordinate the railway's participation in the project and ultimately to handle its daily operations.

Though opening day was still many months away, there was a need to turn public thought toward the idea of rail commuting.

The commuter service needed an 'image'. A design group composed of government representatives, members of Canadian National's visual redesign staff, and representatives of industrial design and advertising consultants, was formed to produce a distinctive identification of all aspects of the new operation. And thus was born "Government of Ontario Transit", a timely "GO TRANSIT" for short. GO Transit's symbol — a stylized 'G' and 'O' in bright green linked together by the white



The imagination of government, industrial and railway designers went into the creation of GO Transit's distinctive symbol.

horizontal bars of the letter 'T' lying on its side — now appears on everything connected with the system, from tickets to locomotives.

As 1965 progressed, so did detailed planning of the myriad items which had to be considered in the development of this totally new mass transportation concept. The list included such activities as station locations and property acquisition, railway construction engineering, scheduling and consists, maintenance requirements, crew arrangements, labour negotiations, fare structure and ticketing, promotion and many more.

The provincial government provided all capital funds amounting to \$18 million for the purchase of equipment and building of new ground facilities for the implementation of GO Transit.

The project was developed in just 24 months from the date of the announcement to proceed in May 1965 until inauguration in May 1967.

In the following sections, the major steps in the planning, building, and the development of operating characteristics of the GO Transit project are reviewed.



equipment

GO Transit's equipment consists of eight diesel electric locomotives, 40 coaches and nine self-propelled cars, provided at a total cost of \$8,000,000.

locomotives

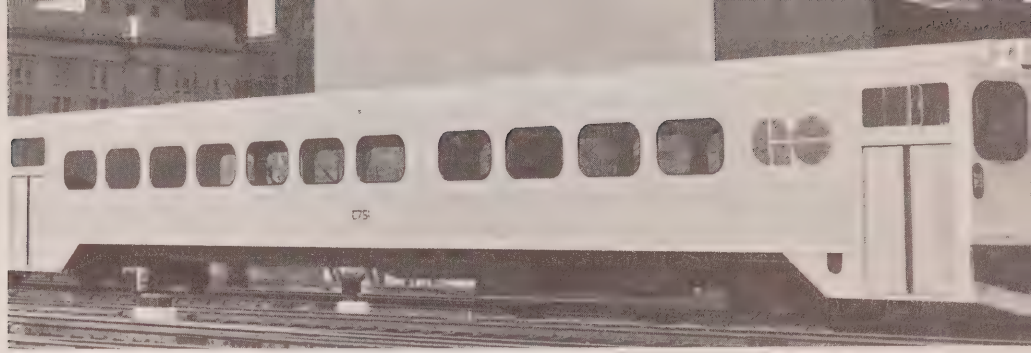
The eight 3,000 h.p. locomotives were built by General Motors

Diesel Ltd., of London, Ontario. To accommodate auxiliary diesel/alternator sets which supply power for train lighting, heating and cooling, they are almost seven feet longer than conventional models. Top speed of the locomotives is 83 m.p.h. They can accelerate a fully-loaded 10-car train from a standing start to 60 m.p.h. in 2.3 minutes, in a distance of 1.5 miles.



Strikingly finished in a dark blue and white, GO Transit's king-size locomotives carry separate power alternators to supply power for train heating and lighting.

The end car of each locomotive-hauled GO train is a 'cab car' fitted for remote control of the locomotive, for reverse operation.



coaches and self propelled cars

Hawker Siddeley Canada Ltd., produced the coaches and self-propelled cars at its Fort William, Ontario plant. Specially designed for GO Transit, the cars are constructed extensively of aluminum, continuing the pioneering use of this material by Canadian rapid transit equipment designers.

Great reductions in weight have been achieved without the sacrifice of capacity or safety. The coaches are 40 per cent lighter, and self-propelled cars 20 per cent lighter, than conventional equipment. It is anticipated that such weight reductions will result in savings in operating and maintenance costs for both the equipment and the track structure.

The coaches are locomotive-hauled in trains of up to ten cars each. Eight are equipped with remote-control operating cabs for push-pull operation, eliminating the time-consuming necessity to run the locomotives round the train at terminal stations.

The self-propelled cars are of two types. Two cars have control cabs at both ends, while the others are equipped with controls at one end only. All must be used in pairs or multiple sets. These formations are especially suited to off-peak requirements, but all can be combined in multiple units of various lengths to supplement locomotive-hauled trains during rush periods. Each self-propelled car is equipped with a single 330 h.p. Rolls Royce traction engine and has a top speed of 80 m.p.h. It has an 80 h.p. diesel/alternator set for auxiliary power needs.



Designed to operate in economical pairs or multiple car trains during off-peak hours, GO Transit's self-propelled cars are almost identical in appearance to the locomotive-hauled coaches of the fleet.



The seating arrangement, and the exterior and interior finish of the various types of GO Transit cars are virtually identical.

Car exterior surfaces are brushed aluminum, relieved by white ends, a white trim strip along the side and the green GO symbol. Eleven large scenic view windows are spaced along each wall. Double-width folding doors at both ends of each car may be electrically operated from any point in the train.

The cars are carried on four-wheel inboard-bearing trucks, fitted with "unitized" brake equipment incorporating a proportioning feature which maintains a constant deceleration rate regardless of variations in passenger load. A steel coil and air spring assembly cushions the ride and ensures that floor height remains constant, again regardless of the number of passengers.

◀ This compact panel is the engineer's control stand of a self-propelled car. Cab cars, for the remote control of locomotives in the push-pull trains, have identical control cabs.

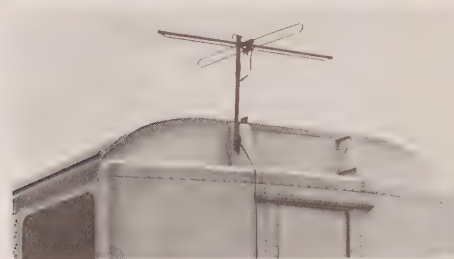
In addition to two-way radio communication with train dispatchers, the commuter administration centre, and the maintenance department, GO Transit equipment boasts a versatile on-train communication system capable of providing private inter-crew communication, FM radio background music, announcements to the passenger areas, and means for addressing platform crowds through externally-mounted speakers on both sides of one end of each car.

Styling and comfort are believed to play an important role in luring the motorist away from his automobile, and consequently a great deal of consideration was given to the decor and interior appointments.

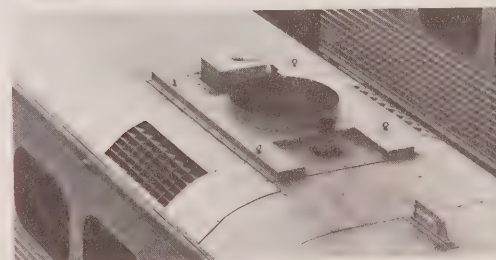
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- 1 *Inside-bearing truck; coach.*
 - 2 *Receiving antenna for FM background music; cab car.*
 - 3 *Engine cooling fans; self-propelled car.*
 - 4 *Standby power 'plug-in'; self-propelled car.*
-



1



2



3

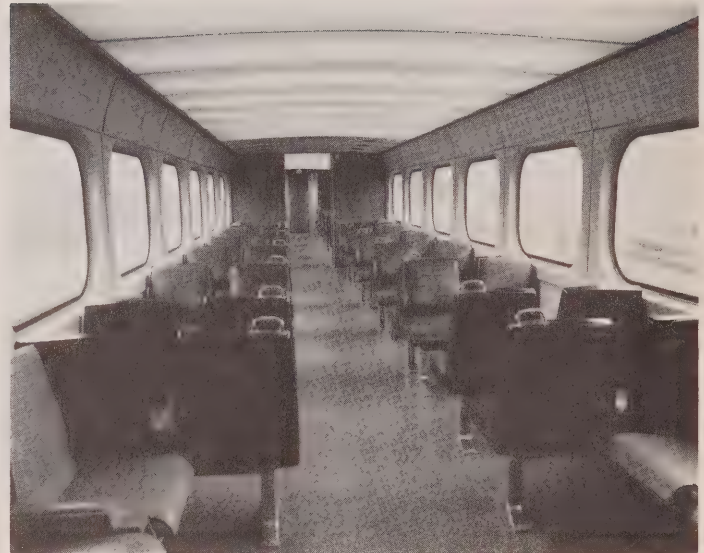


4

The predominant wall colour throughout is beige-gray complemented by green on the vestibule bulkheads and rosewood and ebony on compartment bulkheads. Floors are finished with an attractive, highly-durable and easily-maintained seamless covering of terrazzo-like vinyl plastic. Ceilings of white translucent plastic panels are illuminated by concealed fluorescent units to highlight the bright interior appearance and provide glare-free night illumination.

The "tunnel effect" of the 85-foot cars is interrupted by a walk-through bulkhead that divides the interior into two passenger compartments, one containing 40 seats, the other 54. The bucket-type seats are non-rotating. Most are grouped in facing pairs to achieve a sense of roominess while retaining a high seating capacity and ease of maintenance. Variety is afforded by wall-mounted seat groups at three locations in each car.

The cars were built with a thermostically-controlled air-conditioning, heating and ventilating system designed to maintain the interior temperature of each car within two degrees of 70°F, despite outside temperatures ranging from minus 20 degrees to 100 degrees.



The bright atmosphere of GO equipment's interior decor is enhanced by the translucent illuminated ceiling which provides glare-free illumination day and night.

stations

GO Transit trains serve a total of 15 stations along their 60-mile Hamilton-Pickering route. Eleven of these are new facilities, constructed especially for commuters.

Between two and seven miles apart, the suburban stations were located close to major arteries to provide easy access for the majority of people within their defined catchment areas. Unlike conventional railway stations which provide ticketing and waiting room facilities in a single building, the new GO stations

consist of a separate ticketing office and several on-platform shelters spaced a length of a car apart to distribute passengers, and constructed of prefabricated aluminum-and-glass panels finished in green enamel. Ticket offices, parking lots and platforms are brightly illuminated at night.

Stations and platforms are fenced so that passengers must enter and leave the platform area by way of the ticketing office.





Heated platform shelters at Guildwood station are spaced a car length apart to encourage even distribution of passengers throughout the train.

Pedestrian underpasses enable passengers to cross from one platform to the other without danger.

Because of the trial nature of the project, conventional railway low-level platforms were adopted, although equipment design allows for conversion to high-level (car floor height) platforms at a future date.

Each GO Station is manned by two attendants during the rush hours to avoid ticketing congestion. A single attendant is on duty during off-peak periods.

A total of more than 3,000 free parking spaces have been provided at all but two inner stations, Mimico and Danforth, where it was expected that walking and public transportation, rather than the automobile would be more widely used to these stations. An unexpectedly heavy demand for parking developed at most stations soon after the service opened and lots were quickly expanded to provide parking for approximately 40 per cent of the commuters, rather than the 30 percent originally anticipated. Because of low patronage forecasts, it was decided to use existing CN parking facilities at Bronte, Burlington and Hamilton.

GO stations are cleaned and maintained by outside firms under contract. Snow removal and the clearing of parking lots and ground level platforms are likewise tendered to outside contractors.

Toronto's Union Station was renovated to provide facilities for GO Transit patrons separate from inter-city passenger activities. Illuminated signs on the two-track platform assigned to GO



Free parking and kiss-n-ride areas are provided at most suburban GO Transit stations.

Transit indicate the destination of each train. Exits from this platform channel commuters into the lower concourse of the station, an area formerly utilized for general passenger arrivals. This concourse contains ticket sales booths and eight collection points, a modern news stand and refreshment counter. Exits from the concourse lead to the street, the Toronto Transit Commission's subway and inter-city CN and CP trains.



Illuminated signs guide passengers to the right trains at Union Station. Here, self-propelled car D705 heads an evening train for Oakville.

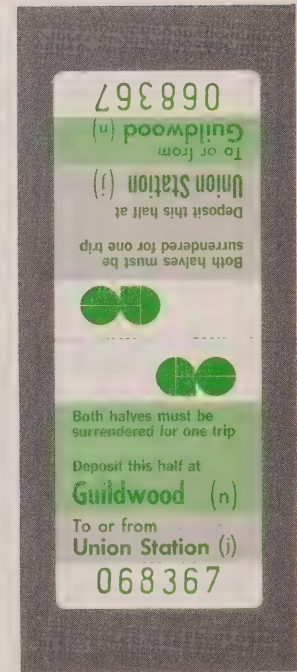
fares and ticketing

GO Transit's basic multiple-ride tariff of 3.5 cents a mile takes into account that rail commuter fares should be competitive with auto commuting costs, and yet not undercut other forms of public transportation.

The minimum fare is 42 cents for trips between stations up to 12 miles apart; the maximum is \$2.00 for the 60-mile trip between the two outer stations, Hamilton and Pickering. Ticket books are sold for \$5.00, \$10.00, \$15.00, or \$20.00 thus reducing the need for making change. The number of tickets contained in each book depends on the distance travelled.

Single ride tickets cost approximately 25 percent more than the multiple-ride fare, with a minimum price of 50 cents. Children under 56 inches in height travel anywhere on the system for a 25 cent fare, while infants in arms are carried free.

A separate two-part ticket is required for each trip on GO Transit, a practice contrasting with commuter ticketing procedures elsewhere which usually employ multi-punch tickets or flash cards.

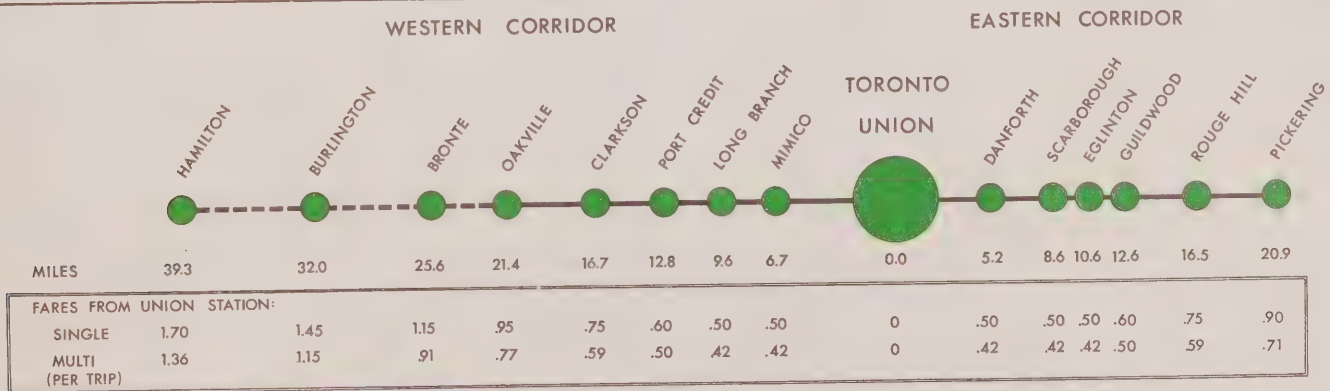


Passengers purchase tickets similar to the GO Transit facsimile illustrated to the right.

One portion of a ticket is surrendered on entry to a station and the other handed over as the passenger leaves his destination station. All tickets are prominently colour-coded to identify origin and destination stations. In this way, collectors readily identify valid tickets for their stations, regardless of points of origin.

The separate ticket principle provides a continuous flow of information on passenger movements to assist in the evaluation of riding patterns and trends, as well as to discourage unauthorized travel.

There are no ticket sales or collections carried out aboard trains.



TRANSIT STATIONS AND FARES

STATION - MONDAY THROUGH FRIDAY, EXCEPT HOLIDAYS - EASTBOUND

BURLINGTON	BRONTE	OAKVILLE	CLARKSON	PORT CREDIT	LONG BRANCH	MIMICO	TORONTO UNION	DANFORTH	SCAR. BOROUGH	EGLINTON	GUILDWOOD	ROUGE HILL	PICKERING	Train No.	Timeable Notes
Arr.	Lv.	Arr.	Lv.	Arr.	Lv.	Arr.	Lv.	Arr.	Lv.	Arr.	Lv.	Arr.	Lv.	Arr.	Lv.
0656	0703	0710	0717	0722	0728	0735	0747	0622	0628	0633	0638	0643	0649	902	
0736	0743	0750	0757	0802	0808	0815	0827	0822	0828	0833	0838	0843	0849	904	
		0810	0817	0822	0828	0835	0847							906	
		0830	0837	0842	0848	0855	0907	0913	0922	0928	0933	0938	0943	908	
		0930	0937	0942	0948	0955	1007	1013	1022	1028	1033	1038	1043	910	
		1030	1037	1042	1048	1055	1107	1113	1122	1128	1133	1138	1143	912	
		1130	1137	1142	1148	1155	1207	1213	1222	1228	1233	1238	1243	914	
		1230	1237	1242	1248	1255	1307	1313	1322	1328	1333	1338	1343	916	
		1330	1337	1342	1348	1355	1407	1413	1422	1428	1433	1438	1443	918	
		1430	1437	1442	1448	1455	1507	1513	1522	1528	1533	1538	1543	920	
		1530	1537	1542	1548	1555	1607	1613	1622	1628	1633	1638	1643	922	
						1615	1627	1633	1642	1648	1653	1658	1703	924	
		1630	1637	1642	1648	1655	1647	1653	1702	1708	1713	1718	1723	926	
						1715	1727	1733	1742	1748	1753	1758	1803	928	
		1730	1737	1742	1748	1755	1807	1813	1822	1828	1833	1838	1843	930	
		1830	1837	1842	1848	1855	1907	1913	1922	1928	1933	1938	1943	932	
		1930	1937	1942	1948	1955	2007	2013	2022	2028	2033	2038	2043	934	
		2030	2037	2042	2048	2055	2107	2113	2122	2128	2133	2138	2143	936	
		2130	2137	2142	2148	2155	2207	2213	2222	2228	2233	2238	2243	938	
		2230	2237	2242	2248	2255	2307	2313	2322	2328	2333	2338	2343	936	

NOTE: *No. 954 does not stop at Clarkson—Stops at Lorne Park at 0758.

EASTBOUND - WEEKENDS AND HOLIDAYS - EASTBOUND

BURLINGTON	BRONTE	OAKVILLE	CLARKSON	PORT CREDIT	LONG BRANCH	MIMICO	TORONTO UNION	DANFORTH	SCAR. BOROUGH	EGLINTON	GUILDWOOD	ROUGE HILL	PICKERING	Train No.	Timeable Notes
Arr.	Lv.	Arr.	Lv.	Arr.	Lv.	Arr.	Lv.	Arr.	Lv.	Arr.	Lv.	Arr.	Lv.	Arr.	Lv.
0630	0637	0642	0648	0655	0707	0713	0722	0728	0733	0738	0743	0749	904		
0730	0737	0742	0748	0755	0807	0813	0822	0828	0833	0838	0843	0849	906		
0830	0837	0842	0848	0855	0907	0913	0922	0928	0933	0938	0943	0949	908		
0930	0937	0942	0948	0955	1007	1013	1022	1028	1033	1038	1043	1049	910		
1030	1037	1042	1048	1055	1107	1113	1122	1128	1133	1138	1143	1149	912		
1130	1137	1142	1148	1155	1207	1213	1222	1228	1233	1238	1243	1249	914		
1230	1237	1242	1248	1255	1307	1313	1322	1328	1333	1338	1343	1349	916		
1330	1337	1342	1348	1355	1407	1413	1422	1428	1433	1438	1443	1449	918		
1430	1437	1442	1448	1455	1507	1513	1522	1528	1533	1538	1543	1549	920		
1530	1537	1542	1548	1555	1607	1613	1622	1628	1633	1638	1643	1649	922		
1630	1637	1642	1648	1655	1707	1713	1722	1728	1733	1738	1743	1749	924		
1730	1737	1742	1748	1755	1807	1813	1822	1828	1833	1838	1843	1849	926		
1830	1837	1842	1848	1855	1907	1913	1922	1928	1933	1938	1943	1949	928		
1930	1937	1942	1948	1955	2007	2013	2022	2028	2033	2038	2043	2049	930		
2030	2037	2042	2048	2055	2107	2113	2122	2128	2133	2138	2143	2149	932		
2130	2137	2142	2148	2155	2207	2213	2222	2228	2233	2238	2243	2249	934		
2230	2237	2242	2248	2255	2307	2313	2322	2328	2333	2338	2343	2349	936		

WESTBOUND - MONDAY THROUGH FRIDAY, EXCEPT HOLIDAYS - WESTBOUND

Train No.	PICKERING	ROUGE HILL	GUILDWOOD	EGLINTON	SCAR. BOROUGH	DANFORTH	TORONTO UNION		MIMICO	LONG BRANCH	PORT CREDIT	CLARKSON	OAKVILLE	BRONTE	BURLINGTON	HAMILTON	Train No.	Timeable Notes
							Arr.	Lv.										
903	0600	0606	0612	0617	0622	0628	0637	0643	0656	0702	0708	0713	0720				903	
949	0640	0646	0652	0657	0702	0708	0717	0723	0736	0742	0748	0753	0800				949	
905	0700	0706	0712	0717	0722	0728	0737	0743	0756	0802	0808	0813	0820				905	
953	0720	0726	0732	0737	0742	0748	0757	0803	0816								953	
955	0740	0746	0752	0757	0802	0808	0817	0823	0836								955	
907	0800	0806	0812	0817	0822	0828	0837	0843	0856	0902	0908	0913	0920				907	
909	0900	0906	0912	0917	0922	0928	0937	0943	0956	1002	1008	1013	1020				909	
911	1000	1006	1012	1017	1022	1028	1037	1043	1056	1102	1108	1113	1120				911	
913	1100	1106	1112	1117	1122	1128	1137	1143	1156	1202	1208	1213	1220				913	
915	1200	1206	1212	1217	1222	1228	1237	1243	1256	1302	1308	1313	1320				915	
917	1300	1306	1312	1317	1322	1328	1337	1343	1356	1402	1408	1413	1420				917	
919	1400	1406	1412	1417	1422	1428	1437	1443	1456	1502	1508	1513	1520				919	
921	1500	1506	1512	1517	1522	1528	1537	1543	1556	1602	1608	1613	1620				921	
923	1600	1606	1612	1617	1622	1628	1637	1643	1656	1702	1708	1713	1720				923	
967								1703	1716	1722	1728	1733	1740				967	
969								1723	1736	1742	1748		1800	1806	1814	1826	969	*
925	1700	1706	1712	1717	1722	1728	1737	1743	1756	1802	1808	1813	1820				925	
971	1720	1726	1732	1737	1742	1748	1757	1803	1816	1822	1828	1833	1840				971	
973	1740	1746	1752	1757	1802	1808	1817	1823	1836	1842	1848	1853	1900	1906	1914	1926	973	
927	1800	1806	1812	1817	1822	1828	1837	1843	1856	1902	1908	1913	1920				927	
975	1820	1826	1832	1837	1842	1848	1857										975	
929	1900	1906	1912	1917	1922	1928	1937	1943	1956	2002	2008	2013	2020				929	
931	2000	2006	2012	2017	2022	2028	2037	2043	2056	2102	2108	2113	2120				931	
933	2100	2106	2112	2117	2122	2128	2137	2143	2156	2202	2208	2213	2220				933	
935	2200	2206	2212	2217	2222	2228	2237	2243	2256	2302	2308	2313	2320				935	
937	2300	2306	2312	2317	2322	2328	2337	2343	2356	0002	0008	0013	0020				937	

NOTE: *No. 969 does not stop at Clarkson—Stops at Lorne Park at 1751.

WESTBOUND - WEEKENDS AND HOLIDAYS - WESTBOUND

Train No.	PICKERING	ROUGE HILL	GUILDWOOD	EGLINTON	SCAR. BOROUGH	DANFORTH	TORONTO UNION		MIMICO	LONG BRANCH	PORT CREDIT	CLARKSON	OAKVILLE	BRONTE	BURLINGTON	HAMILTON	Train No.
							Arr.	Lv.									
903	0600	0606	0612	0617	0622	0628	0637	0643	0656	0702	0708	0713	0720	—	—	—	903
905	0700	0706	0712	0717	0722	0728	0737	0743	0756	0802	0808	0813	0820	—	—	—	905
907	0800	0806	0812	0817	0822	0828	0837	0843	0856	0902	0908	0913	0920	—	—	—	907
909	0900	0906	0912	0917	0922	0928	0937	0943	0956	1002	1008	1013	1020	—	—	—	909
911	1000	1006	1012	1017	1022	1028	1037	1043	1056	1102	1108	1113	1120	—	—	—	911
913	1100	1106	1112	1117	1122	1128	1137	1143	1156	1202	1208	1213	1220	—	—	—	913
915	1200	1206	1212	1217	1222	1228	1237	1243	1256	1302	1308	1313	1320	—	—	—	915
917	1300	1306	1312	1317	1322	1328	1337	1343	1356	1402	1408	1413	1420	—	—	—	917
919	1400	1406	1412	1417	1422	1428	1437	1443	1456	1502	1508	1513	1520	—	—	—	919
921	1500	1506	1512	1517	1522	1528	1537	1543	1556	1602	1608	1613	1620	—	—	—	921
923	1600	1606	1612	1617	1622	1628	1637	1643	1656	1702	1708	1713	1720	—	—	—	923
925	1700	1706	1712	1717	1722	1728	1737	1743	1756	1802	1808	1813	1820	—	—	—	925
927	1800	1806	1812	1817	1822	1828	1837	1843	1856	1902	1908	1913	1920	—	—	—	927
929	1900	1906	1912	1917	1922	1928	1937	1943	1956	2002	2008	2013	2020	—	—	—	929
931	2000	2006	2012	2017	2022	2028	2037	2043	2056	2102	2108	2113	2120	—	—	—	931
933	2100	2106	2112	2117	2122	2128	2137	2143	2156	2202	2208	2213	2220	—	—	—	933
935	2200	2206	2212	2217	2222	2228	2237	2243	2256	2302	2308	2313	2320	—	—	—	935
937	2300	2306	2312	2317	2322	2328	2337	2343	2356	0002	0008	0013	0020	—	—	—	937

scheduling

Passenger convenience was one of the prime considerations in devising a schedule for GO Transit. Recognizing that public commitment to rail service required more than a rush-hour operation only, GO Transit planners stipulated that the trains would run at regular intervals, 18 hours a day, seven days a week, with additional trains for peak operations.

From this “ground rule” developed the basic hourly service now employed, which provides constant scheduling at each station — a train at the same time each hour. A further convenience is available to riders travelling across the region. For the first time, trains are scheduled *through* Union Station, not terminating there.



Evening westbound commuters on GO trains leave the traffic behind on the adjoining Gardiner Expressway, west of Union Station.

Weekday GO Transit service consists of hourly trains between Oakville, Union Station and Pickering from approximately 6:00 a.m. to midnight. During rush hours trains run at 20-minute intervals. West of Oakville, the communities of Bronte, Burlington and Hamilton are served by two trains eastbound into Toronto in the morning rush hour and two trains westbound in the evening peak period. On weekends, the basic hourly service between Oakville and Pickering prevails.

GO Transit's schedules allow 37 minutes for the 21-mile journey from Toronto Union Station to Oakville or Pickering for an average speed, including stops, of almost 35 m.p.h. The trip from Hamilton to Toronto consumes 64 minutes. As a matter of interest, the Oakville-Toronto commuter now completes his trip in 16 minutes less time than was required on CN local trains prior to GO Transit.

A six minute stop is scheduled at Union Station to allow ample time for entire train loads to board or leave the trains. Ten minute stops are allowed at each end of the line for the enginemen to 'change ends' (GO's push-pull trains always operate with the

locomotive at the east end, with the cab controlled cars always on the west end for the return journey).

CN crews man GO Transit Trains, bidding for assignments on a seniority basis as with any other CN operation. Thirteen engine crews and ten train crews are normally required to handle GO Transit's schedules.

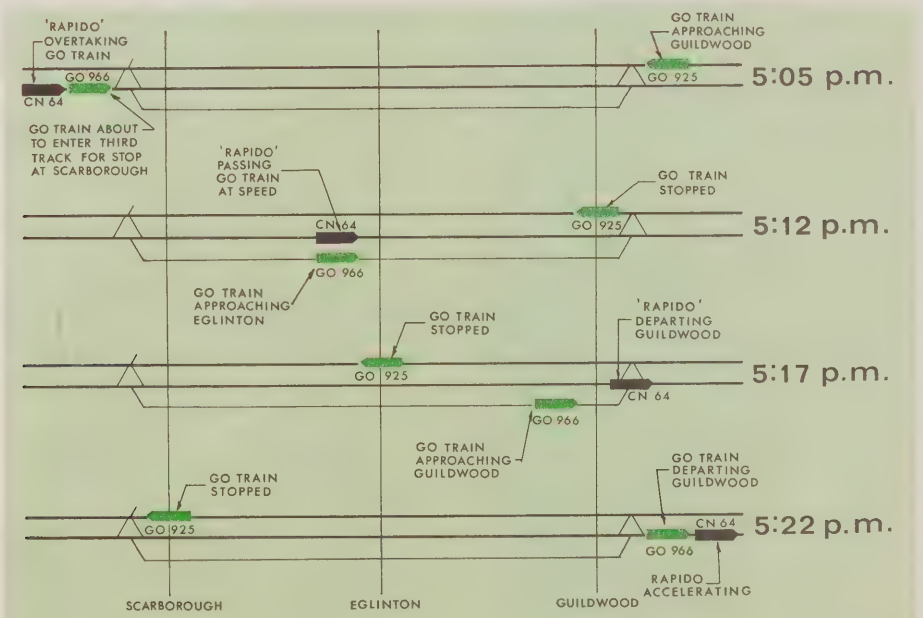


trackwork and signalling

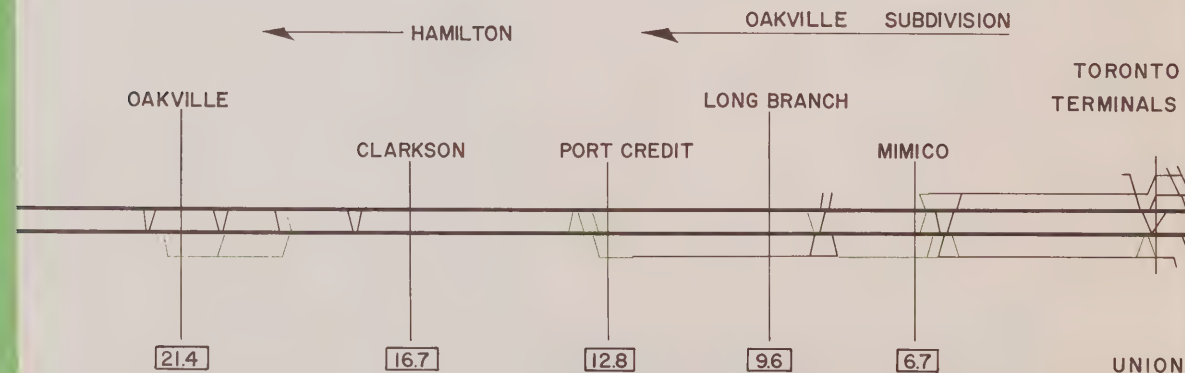
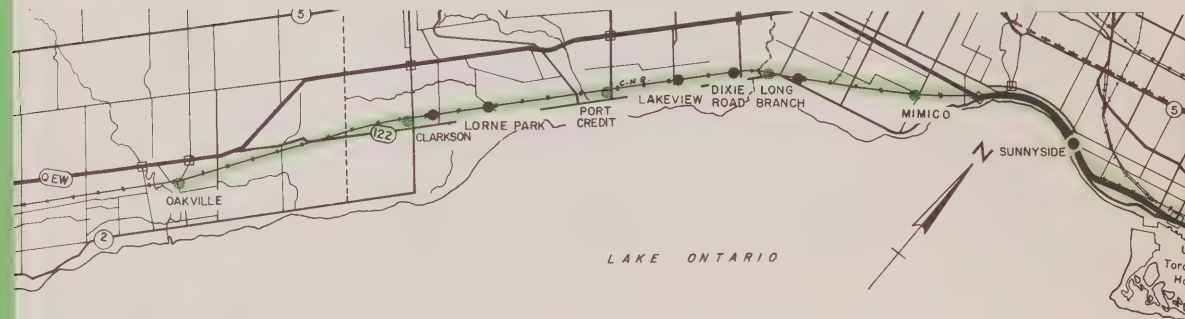
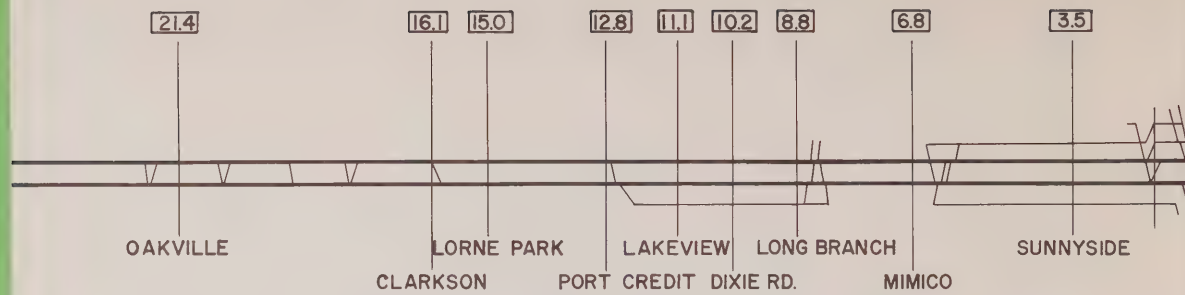
In preparation for the new commuter service on its main line, the CN carried out many relocations and additions to its track and installed a new signal system throughout the territory.

In the 42-mile Oakville-Pickering section, CN laid 19 miles of

new mainline track and five miles of sidings, predominantly in the Port Credit, Clarkson and Scarborough-Guildwood areas. Approximately 100 new track switches were installed, many in high-speed crossovers, to allow trains to move from one track to another with little slackening of speed.

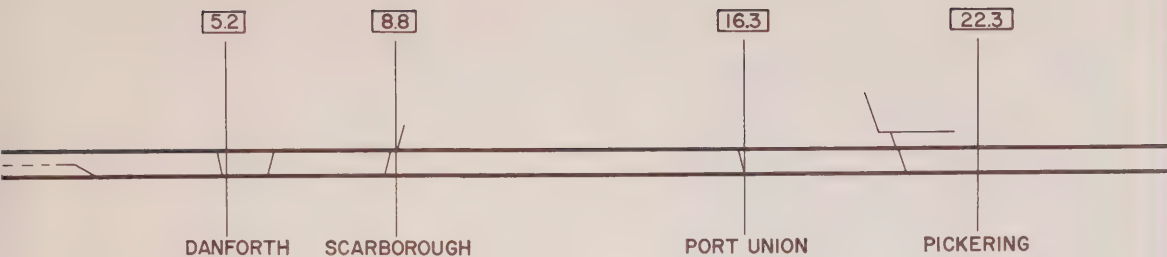


TYPICAL UTILIZATION OF THREE-TRACK MAIN LINE

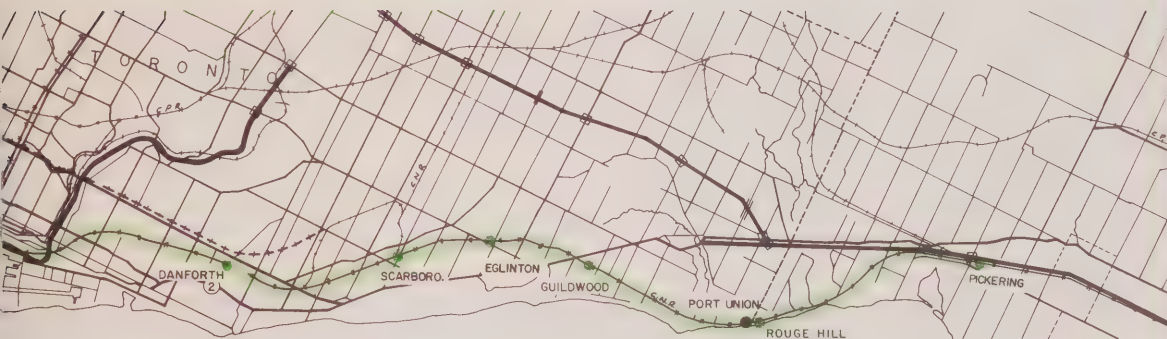


LEGEND

- CN STOPS PRIOR TO GO TRANSIT
- CN RAIL LINE AND GO TRANSIT STATIONS
- GO TRANSIT TRACK CHANGES
- MILEAGE FROM UNION STATION

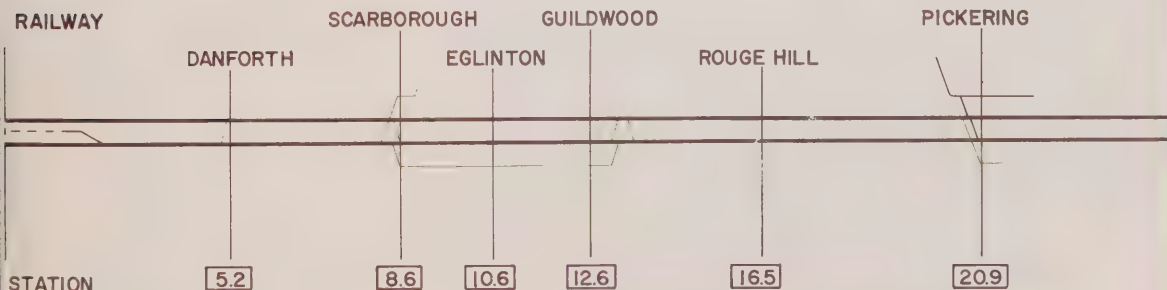


SHOWING CN STATIONS



KINGSTON SUBDIVISION

MONTREAL



1967 PLAN

SHOWING GO TRANSIT STATIONS

CANADIAN NATIONAL RAILWAYS SCHEMATIC TRACK DIAGRAM OAKVILLE — PICKERING

SHOWING GO TRANSIT TRACK CHANGES

DATE: 15-3-68

MTARTS

A centralized traffic control (CTC) signal system replaced an automatic block signal (ABS) system. The CTC installation places the entire control of GO Transit trackage in the hands of train dispatchers at CN's Freight Classification Yard, located near Maple, 18 miles northwest of downtown Toronto.

Signals and track switches at 22 controlled points across the GO Transit territory are operated remotely by dispatchers, enabling trains to move from track to track and into and out of junction tracks and sidings. Electrical interlocking guards against the dispatcher inadvertently assigning oncoming trains to the same track, or setting up routes in conflict with those already set up.

Virtually all of CN's trackage in the Toronto area is controlled remotely from this room at CN's Freight Classification Yard. Four dispatchers seated at push-button consoles direct the movement of trains whose positions are indicated on the large panel in the background.





At Pickering, eastern terminus of the GO system, the access line from CN's Toronto Yard sweeps in from the north. Toronto-Montreal freight traffic uses this route, bypassing the lakeshore trackage used by GO.

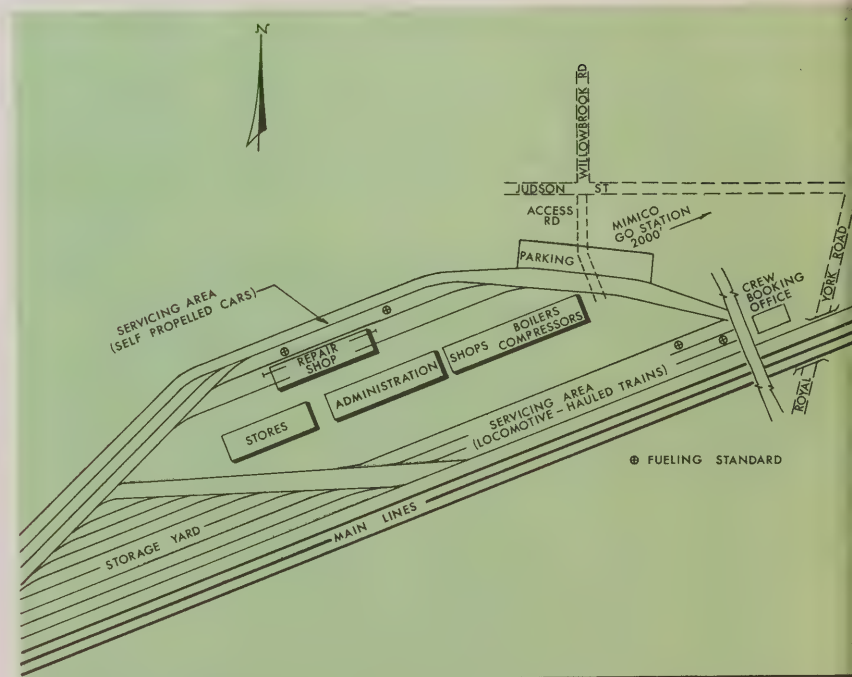
equipment servicing and maintenance

To keep GO Transit rolling stock in top condition, a four-building repair and maintenance complex — Willowbrook Maintenance Depot — was established near Mimico station, close to the mid-point of the GO system. Willowbrook Depot occupies land which, until 1965, comprised Canadian National's Mimico freight car repair centre.

In addition to existing structures, a modern maintenance building fitted with a drop pit, overhead crane and other machinery for rolling stock repairs was specially constructed for the commuter service.

Willowbrook's trackage has been arranged and equipped to permit full servicing and running repairs to trains wherever they may be parked in the area. Standby electrical requirements for the equipment are met from wayside receptacles, so that the auxiliary engines need not be operated.

Each GO Transit coach receives a thorough cleaning inside and out daily. Most exterior washing is performed by CN's mechanical car washer near the Spadina Avenue coach yard. Schedules are arranged so that equipment may pass through the washer daily on the way into or out of service.



GO TRANSIT WILLOWBROOK MAINTENANCE YARD

All GO Transit equipment is maintained on a mileage basis, with several different inspections, checks and renewals coming due at varying mileage intervals. Much of this work is done in GO

Transit's own maintenance building, although major locomotive work is performed at CN's Spadina Diesel Shop, where specialized equipment is available.



GO Transit's Willowbrook Maintenance Depot stands at the east end of the former CN Mimico freight yard. In the background is the new maintenance shop, constructed for the commuter service; the three structures in the foreground were originally part of the Mimico car repair facility and now, rehabilitated, they accommodate shops, offices and stores for GO Transit.



Material in this report
was prepared for submission
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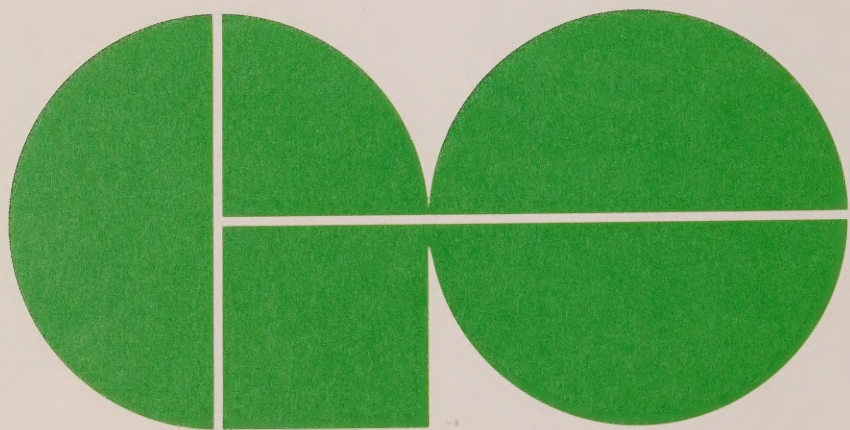
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Department of Highways	Cover, 17, 20, 23.

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